

Excavations and Discoveries at Tap'enk'eng and other Prehistoric Sites of Pali District

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The Commission for Historic Research, Taipei Prefecture, undertook two seasons of excavations at the prehistoric site near Tap'enk'eng, in Pali district, the first lasting from 17 April to 2 May 1962, the second from 18 February to 11 March 1963. The author participated in the 1963 excavations, during which season reconnaissance and trial excavations were carried out at Tap'enk'eng and the nearby Shihsanhang shell-mound and the Hsiakutap'u site. This preliminary report of the 1962 and 1963 excavations and of the main discoveries is based on the author's field observations, field notes of both seasons, and a study of the excavated remains—the latter are still being examined; a detailed report about them and the excavations will appear later.

GEOGRAPHICAL AND HISTORICAL BACKGROUND

The Pali district of Taipei prefecture is on the left bank of the Tanshui near its mouth. Local traditions refer to it as Palip'en, the site of the Palip'en village of the Ketagalan aborigines, who occupied the Taipei basin before the Han Chinese arrived. With higher water levels than the present and better shipping facilities, the Tanshui river made Pali an important Chinese post in the early colonial years. The Chinese arrived in this neighbourhood in the latter years of K'ang-hsi (1662–1722; Ch'ing dynasty), and made a settlement there in the first years of Yüing-cheng (1723–35). In the early part of Ch'ien-lung (1736–95), the settlement which grew into a town is referred to as Palip'en in *T'aiwan fu-chih*. The subsequent lowering of Tanshui water levels in this part gradually caused Palip'en to decline, and the town of Huwei (or Tanshui) across the river eventually became the leading port in northern Taiwan. Under T'ung-chih (1862–74), Palip'en sank into insignificance.

The archaeological investigation of Pali district began under Japanese occupation. Artifacts in the Museum collections of the Department of Archaeology and Anthropology, National Taiwan University, are recorded as collected, during Japanese occupation, in the district of Pali, but details of their provenance are lacking. A prehistoric site was found in the district at Miaohou, near the town of Tuch'uant'ou, by Kokubu Naoichi (1944: 30–44) toward the end of their occupation.

Intensive investigations of the district were carried out after World War II. In the winter of 1957 Professor Lin Chao-chi of the National Taiwan University discovered the Shihsanhang shell-mound near Tingkuts'un. In June 1958, when investigators from the Commission for Historic Research of Taipei prefecture came to revisit the Shihsanhang site, they located the Tap'enk'eng site on the slope

of Kuanyin Hill, near P'it'outs'un, a short distance from the Shihsanhang shell-mound. Soon afterward, reconnaissance works undertaken under the Commission's auspices uncovered in that neighbourhood several new prehistoric sites such as Ch'angtaok'ou and Hsiakutap'u; and the Tuch'uant'ou site first identified by Kokubu was also revisited (Sheng 1960). Ta-p'en-k'eng is the largest site in area (350×250 m.) and yielded the greatest number of prehistoric finds; in fact, it is one of the biggest and most important sites found in the Taipei prefecture since the war.

The Tap'enk'eng site is on the northern slope at the foot of Kuanyin hill, near P'it'outs'un, in the district of Pali, on the southern bank of the Tanshui near its mouth. The valley to the west of the hill is called Tap'enk'eng, from which the site was named. The valley east of the hill is called Kamalank'eng, and the small village, Kungt'ien, is at the foot of the hill. The Provincial Bus Lines maintains a flag-stop at P'it'outs'un. Kungt'ien can be reached from the flag-stop along a small trail toward the southeast; from Kungt'ien a trail leads to Fengkuitouhu by way of Kuanyin hill; about half a kilometre from Kungt'ien, one turns uphill to reach the small temple of Tamukung, halfway to the top and about 50 metres above sea level. The prehistoric site at Tap'enk'eng centres around this temple.

Prehistoric remains are scattered on terrace-like slopes between Tap'enk'eng and Kamalan valleys, about 30 to 70 metres in elevation. There were more finds to the east of the Tamukung temple, but decrease in quantity to the west. The slope above 70 metres becomes steep, and a flat terrace is reached at about 140 metres, but no prehistoric remains have been found on it.

The site overlooks the Formosan Strait to the northwest and the Tanshui river to the northeast, both about 1.5 kilometres from the temple. The northeast slopes of the hill become steep, with a 17 to 20 degree gradient. A small creek circles the foothills between the site and Kamalan valley to the west, and flows into the Kamalan. The creek has abundant water all year round and is the main source of water for irrigating the fields near Kungt'ien and P'it'ou villages. The soil at the site is dark and loose, and has considerable depth. Small patches of land around the site are cultivated; sweet potatoes and peanuts are grown here, while groves of bamboo, pine trees, and *hsiang-ssu* trees (*Acacia confusa* Merr.) cover most of the hill. The hill and the surrounding valleys are covered with small and large pebbles and boulders, which have been used to mark off the cultivated fields; prehistoric stone implements are often collected near these rows of stones.

1962 EXCAVATIONS: TINGYÜAN

The first excavations on the Tap'enk'eng site were undertaken in April 1962. The bamboo grove east of the Tamukung temple is designated as Excavation Area A, and the pine grove west of the temple as Excavation Area B. Several trial pits, one metre square, were first dug at various spots to locate the centre of occupation and to reveal the underground stratigraphy of artifacts.

A shell midden area behind the temple in Excavation Area A, approximately 10 metres in diameter, was first selected for trial excavation, and eleven pits were dug. The first pit, designated as 18RO, contains a small amount of cultural remains to a depth of 30 to 40 cm., below which is sterile soil. Six more trial pits were then

excavated a little downslope, designated as 9Ro, 9R1, 9R2, 10R1, 10R2, and 11R1, and the following general stratigraphy was uncovered. The topmost layer is the surface soil, with a maximum depth of 15 cm.; below this is a layer from 10 to 15 cm. deep of grayish soil containing mollusc shells. Underneath this is a layer of dark, grayish loose soil, about 40 to 50 cm. deep. This layer gradually changes into a dark, brownish soil below, around 20 cm. thick. All these strata contain a large number of potsherds and, except for the surface soil and the topmost portions of the grayish, shell-containing layer, are undisturbed. Under the dark, brownish layer is yellow-brownish sterile soil containing boulders. Four more trial pits were opened nearby, designated as 8Ro, 7Ro, 7R1, and 6Ro, and these revealed layers bearing cultural remains, 80 to 100 cm. in depth, although there were fewer mollusc shells here and none at all in some areas.

Another trial pit, 2 × 1 m., was dug in Excavation Area B, but only a very few artifacts were found.

From the twelve trial pits opened during the first season of work at the Tap'enk'eng site, many cultural remains have been brought to light. All have been cleaned and processed, and are now being classified and catalogued. Among the stone implements are stepped adzes, flat chisels, polished hoes, chipped hoes, polished arrowheads, tubular beads (of soft, jadeish material), hammer-stones, stones with depressions, pillow-shaped artifacts with sockets, and grinding stones. In addition, there are iron objects (arrowheads and nails), coins, glass beads, glass rings, porcelain sherds of various ages, and many univalval and bivalval mollusc shells and animal bones. Potsherds constitute the majority of finds uncovered from the site. About half of these have plain surfaces; the other half are decorated. Those with plain surfaces or with pitted patterns were low-fired, reddish-brown or gray-brownish in colour, and with pastes and shapes similar to the ceramics of the upper stratum of the Yüanshan shell-mound. Sherds with net or checker patterns are much harder and reddish-brown, analogous to the so-called Ketagalan ware. Considering the great variety of stone implements and ceramics as well as the fact that ancient and modern porcelain sherds, coins, and iron artifacts were also found, the Commission believed that the Tap'enk'eng site was a stratified one, containing two or more different phases of culture. In the hope that more detailed excavation at the site might help to determine the cultural stratigraphy of the northern coasts of Taiwan as well as the absolute dates of the various strata cultures, the Commission decided on a second season of work at the site, and invited the Institute of Ethnology, Academia Sinica, to participate in the work.

1963 EXCAVATIONS: HSIAYÜAN

The second season of excavation at Tap'enk'eng was carried out in 1963 with three aims.

- i. To examine the stratified relationships of the various cultural phases at the site and the cultural contexts of mainland Chinese types, on the basis of detailed excavations, and to establish a cultural sequence in northern Taiwan and an absolute chronology;

- ii. To excavate the natural and cultural remains of the shell middens in order to procure relevant data on the dating and cultural relationships of the shell-mound;
- iii. To obtain a variety of cultural remains from the site to amplify our knowledge of its cultural contents.

Work began in Excavation Area C, a spot with scattered shell middens at the southern end of Tingyüan fields behind the Tamukung temple. Two trial pits, 1 m. square, were opened, but very few remains were found.

Attention was then focused on Excavation Area D, the spot locally known as Hsiayüan (downslope from Tingyüan), where sweet potato was planted; there prehistoric remains were found scattered on the surface. Three trial pits were dug, 1 m. square, designated respectively D-1, D-3, and D-7. Abundant remains were brought to light in this area, and D-3 was increased to 2 m. to a side. Remains from D-3 were recorded according to four quarters, D-3, D-3a, D-4, and D-4a, and artificial layers of 10 cm. each were made and designated as layer 1, layer 2, and so on, from the top down. After the artifacts were removed from the ground, the earth was sifted with a large round bamboo sieve, about 40 cm. in diameter with 1-cm. square holes.

The cultural stratum in Excavation Area D has a depth of 90 to 100 cm. and contains two different cultural phases. The upper phase is 80 to 90 cm. in thickness, containing gray-brownish or reddish-brown ceramics of coarse paste with plain surface, and characterized by ringfeet, handles, and clustered incisions on the handles. The most common stone implements are stepped adzes and arrowheads. This phase of the Tap'enk'eng culture is apparently related to similar cultural assemblages from the upper stratum of the Yüanshan shell-mound, the upper stratum of Chihshanyen, and the lower stratum of Chiangt'ou, as well as Chien-shan, Ch'ilian, Yüanshantzu, T'utikungshan, Kuweishan, Chanlungshan, and Panshantzu, in various locations in the Taipei basin.

The lower phase has a depth of approximately 10 cm. and is predominantly characterized by cord-marked potsherds. These are reddish-brown or dark brown, hand made of coarse paste, sand-tempered, and with thick and heavy walls; a few are plain, but most sherds are impressed with cord marks, and a very few exhibit basket patterns. Similar corded-ware phases have been found heretofore from the lower stratum of Yüanshan, the lower stratum of Chihshanyen, as well as Ch'ingyünyen, Yüanshantzu, Hsiakutap'u, and other sites.

Besides its stratification of cultural phases, the Tap'enk'eng site is important because of the discovery of a bronze arrowhead (Fig. 1), the first bronze weapon from the prehistoric period to be found on the island of Taiwan. It was sifted from the earth from the layer 5 (40 to 50

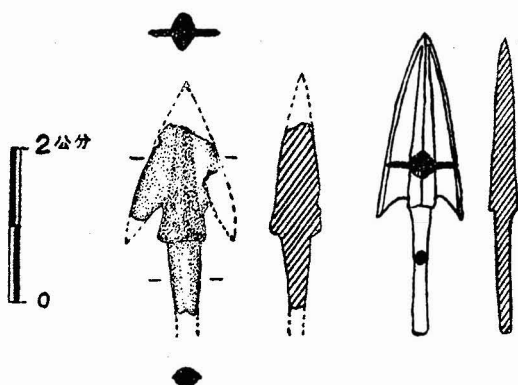


FIG. 1. Bronze arrowheads excavated from Tap'enk'eng (left) and Hsiaot'un (right).

cm. deep) in D-3a. My field notes describe this arrowhead as follows: 'It was cast with double moulds from both sides; highly oxidized and covered completely with verdigris; two blades, long shaft with a solid stem; the point is broken and missing; one of the rear points of the blades is completely, and the other partially, broken and missing; the blades have bilaterally bevelled edges; the shaft extends lengthwise posteriorly beyond the blades and is thickest at the point where it joins the stem; the stem is cylindrical and is broken at the end; 25 + mm. long, 10 + mm. wide; the shaft is 6.5 mm. wide and 8 mm. thick; the stem is 9.5 mm. long; the weight of the arrowhead is 1.6 + gm.'

1963 EXCAVATIONS: TINGYÜAN

After the excavation of Area D was completed, Area A at Tingyüan was re-excavated, and again a square pit was opened, 2 m. to a side, subdivided into four quarters (3R3, 3R4, 4R3, and 4R4). Square 4R3 was the first to be dug, and artificial 10-cm. layers were distinguished. The cultural stratigraphy encountered in this pit follows.

The surface soil is about 20 cm. deep, mixed with fragmentary mollusc shells, and yielded modern Chinese coins and reddish-brown potsherds of considerable hardness and with net-like designs. Below this were undisturbed deposits of prehistoric remains, predominantly potsherds. The third and fourth layers (20 to 40 cm.) yielded reddish-brown sherds of great hardness with net patterns, but reddish-brown potsherds of great thickness and with checker impressions began to appear toward the lowest levels of the fourth layer. Thick potsherds with checker impressions were found predominantly in the fifth and the sixth layers (40-60 cm.). Gray-brownish sherds with plain surfaces began to occur toward the bottom of the sixth layer, and from the seventh layer on the gray-brownish or reddish-brown potsherds predominated. The last layer of deposits achieved a depth of 40 cm. (60 to 100 cm.).

The importance of 4R3, which contained no fewer than four cultural phases in stratified relationship, was immediately recognized, and for greater accuracy 5-cm. layers were distinguished in the excavation of the remaining three quarters of the trial pit. The cultural stratigraphy of these three squares is identical with 4R3. After the sixth layer (50 to 60 cm.), as was the case with 4R3, the soil changed from dark, loose earth to a sticky yellow-brownish earth, and excavating became difficult. Big boulders were met at 1.30 m., which marks the maximal depth of the excavation.

The cultural phases brought to light at Excavation Area A at Tingyüan are as follows. The lowest phase is characterized by gray-brownish and reddish-brown potsherds and can be synchronized to the upper phase at Hsiayüan, described above. Both of these phases are apparently related to the Yüanshan culture. Above this at Tingyüan is a phase characterized by thick, reddish-brown potsherds with checker impressions, similar to the ceramic phase identified at the Botanical Garden of Taipei city, Shuiyüanti, and Koutishan, T'anti, Yingp'ank'ou, Panshantzu, and Tayüan near the town of Shulin. Lying above this phase is another characterized by reddish-brown, hard potsherds with net patterns, similar to those found in the upper layer of Chiangt'ou A, Chiangt'ou B, the Shêtzu shell-mound, the Hsihsinchuangtzu shell-mound, Shuiyüanti of Taipei city, Liuchangli, and the Shihsanhang shell-mound which is on the coast more than a kilometre northwest of this site.

The uppermost phase of the Tingyüan site is characterized by modern potsherds and porcelain sherds of Chinese origin and is apparently of modern Chinese culture.

Excavation Area A at Tingyüan and Area D at Hsiayüan, at Tap'enk'eng, combine to make the following archæological sequence by phases:

Fifth, modern Chinese phase (Tingyüan IV).

Fourth, hard pottery with net patterns (Tingyüan III).

Third, thick pottery with checker patterns (Tingyüan II).

Second, reddish-brown pottery with plain surfaces (Tingyüan I and Hsiayüan II).

First, corded-ware phase (Hsiayüan I).

SHIHSANHANG

After excavating at Tingyüan and Hsiayüan at Tap'enk'eng, it was decided to investigate again, for comparative purposes, the nearby Shihsanhang and Hsiakutap'u sites, where net-patterned hard pottery and corded ware were reported from previous reconnaissance.

Shihsanhang is near the Tingku village in the Pali district, at the triangular area between Tanshui river (about 1 km. to the northeast) and the sea (about 200 m. northwest). The prehistoric site is on an elevated surface, about 350 m. long and 200 m. wide, which is about 1 m. above the nearby ground and 2 to 3 m. above sea level. Some twenty households occupy this elevated surface and use the several ponds of various sizes to irrigate their fields lying some distance away on the level ground. A small creek used to flow along the west side of the site from sources in the Tap'enk'eng valley, but has dried up and is now part of the farm area.

Trial diggings were conducted in the sweet potato gardens west of the house of Mr Chen Shuitu, in the village of Tingkuts'un, at a spot west of pit A2 (designation by the Department of Archæology and Anthropology, National Taiwan University, which did a trial excavation here in March 1959). A square pit, 2 by 2 m., was opened, and the same procedure as that used at the Tap'enk'eng site was followed. The earth in the pit was rather sandy. The surface soil contained some fragments of mollusc shells but had no well-formed shell midden layers. A large number of complete or restorable porcelain pots was found from a depth of 30 cm. and below, in undisturbed deposits, side by side with hard potsherds with impressed patterns. Below this layer is a stratum characterized by hard potsherds with impressed patterns, which reaches a depth of over 80 cm. before sterile sandy layers are met. Another pit, 2 by 1 m., to the east of pit A7 of the Department of Archæology and Anthropology, was excavated in the vegetable garden at the back of the Chen house. Compactly packed mollusc shells were found in this pit from 20 to 70 cm. below ground level; mollusc shells diminished in amount below the 70-cm. mark and disappeared after 90 cm. In the shell middens are many animal bones and reddish-brown potsherds of great hardness with net patterns.

These two pits indicate that no fewer than two cultural phases can be established at the Shihsanhang site: an upper phase of modern Chinese culture and a lower phase of hard, reddish-brown pottery with net patterns; the shell middens were associated with the lower phase.

HSIAKUTAP'U

The investigation of the Hsiakutap'u site took place on the last day of the second season of excavations. The site is located on the slopes of the northeastern end of the Link'ou terrace, about 1.5 km. southwest of the town of Pali, about 500 m. south of the seashore, and a few score metres below the First Public Cemetery of Pali district. Prehistoric remains were scattered in an area approximately 50 by 50 m., and clustered in two spots, in sweet potato and peanut fields. A trial pit about 1 m. long and 50 cm. wide was opened at the centre of the cluster of surface remains situated downslope. Reddish soil of hard consistency was reached in the pit after about 20 cm., and from 5 to 15 cm. deep in this reddish soil were scattered reddish-brown or dark brown potsherds of coarse paste, sand tempered and of great thickness, most of them impressed with cord marks. Many potsherds have been collected at this site since its discovery in March 1959 by the Commission; they are all identical with those obtained at this time from the trial pit. It appears likely that this is a single-phase site characterized by corded pottery.

SUMMARY AND CONCLUSIONS

The two seasons of excavation at Tap'enk'eng and vicinity have produced several important discoveries. Two of them are of far-reaching significance: the stratification of no fewer than five phases of prehistoric and historic cultures, and the finding of the bronze arrowhead, coins, and other artifacts of mainland Chinese affinities.

It has been known that the prehistoric cultures in northern Taiwan can be grouped into the following phases: the corded-ware phase; the phase of red-brown, coarse pottery (or the Yüanshan culture, also known as the culture of Stepped Adzes); the phase of checker-impressed pottery; and the phase of hard pottery with net patterns. The sequential order in which these different ceramic phases were introduced into northern Taiwan has long been in dispute among specialists (Kano 1952; Chang 1954), but in the absence of stratified sites no agreement can yet be reached. The new findings at the sites at Tap'enk'eng not only contribute a stratigraphical sequence of five different cultural phases to the prehistory of northern Taiwan, but also provide artifacts of mainland Chinese affinities that help to date some of these cultural phases in absolute years.

The excavations of the prehistoric site at Tap'enk'eng show that it was occupied continuously from the earliest corded-ware phase through the introduction of modern Chinese civilization, apparently because of the ecological advantages of the area and its strategic location in prehistoric and historic lines of communications.

The bronze arrowhead excavated from the Yüanshan Culture stratum in the upper layer of the Hsiayüan site at Tap'enk'eng (DII) is typologically analogous to the Shang dynasty arrowhead of the two-winged, long-shafted, and stemmed type known from the site of Hsiao't'un (Fig. 1) (Li Chi 1952). The only other possible Bronze Age source of the Tap'enk'eng arrowhead in Eastern Asia would be the area of the Dongson Culture in Southwest China and Indochina, but the typology of Dongson arrowheads appears to differ from our specimen. Most of the bronze arrowheads unearthed at Shihchaishan near Chinning in Yünnan (Yünnan Museum

1959) are of the socketed variety; a few are stemmed, but their shafts are prismatic instead of flat. The site at Dongson in North Vietnam as described by Olav Janse (1958), has yielded bronze arrowheads with spearhead-like elongate shafts with hollow sockets at the end; Janse thinks that this type as well as other three-winged varieties discovered in Dongsonian sites in Indochina are characteristic of the Dongson civilization, and are obviously different from the Yin types at Hsiao-t'un. Thus there is little doubt that the Tap'enk'eng arrowhead is of the Hsiao-t'un type and that its historic connections must be sought for in that direction. Bronze arrowheads of the Hsiao-t'un type have been found elsewhere in South China—at Lamma island of Hong Kong—and Father Finn (1958) is of the opinion that this type of bronze weapon was introduced into Hong Kong during the Western Han dynasty at the latest. This estimated date of its introduction is definitely conservative, and a much earlier date is not to be ruled out.

The communication between North China and the South Seas began at least as far back as the Shang dynasty. Some of the turtle shells found at Hsiao-t'un, used for divination purposes, were certainly from a southern species found today along the coasts of Fukien, Taiwan, Kwangtung, Hainan island, and even Malaya. In discussing the relationship of South China and the Yin dynasty cultures, Jao Tsung-yi (1954) concludes:

The ancient cultures of Kwangtung apparently contained some Yin-Shang culture elements in their aboriginal Yüeh base. It appears that the southeastern coastal regions had communications with North China as early as the Yin dynasty. Since big turtles were included among the tributes to the Yin from Malaya, it is entirely possible that Northern Chinese cultures diffused southward during that early date. The close relationship between the Yin civilization and the prehistoric cultures of South China is attested by the discovery of the 'Hsiao-t'un stone knife' and white pottery in Kwangtung, by the shapes of the beaten pottery vessels that recall Yin dynasty *cheng* vessels, by the similarities of some of the beaten pottery patterns to the decorative designs on the bronzes and white pottery of the Shang Dynasty, and by the so-called double-F pattern which appears to be a local expression of Hsiao-t'un art.

Unless on the basis of evidence not now available it can be shown that the people of the upper phase of Hsiayüan brought a bronze culture with them when they immigrated into northern Taiwan, the best assumption is that the Hsiayüan II bronze arrowhead was imported from South China, possibly by way of Hong Kong. The three-winged bronze arrowhead replaced the Hsiao-t'un two-winged type in North China from the period of the Warring States (c. 450–221 B.C.) If the two-winged bronze arrowhead of Hsiayüan was imported directly from North China, it cannot have been at a later date than the Warring States period. If, on the other hand, it came by way of South China, its date still cannot be later than the Han dynasty. With this evidence we may now date the upper stratum of the Hsiayüan site (i.e. the Yüanshan culture) to the interval between the Shang dynasty and the end of the Han, or about from 1600 B.C. to A.D. 200. Accordingly, the Corded Ware Horizon probably lasted until the beginning years of the Shang dynasty, if not earlier, before it gave way to the succeeding Yüanshan culture.

In addition to the Yüanshan culture, the cultural phase of hard pottery with net patterns excavated from the third layer of the Tingyüan site can also be dated

according to the mainland Chinese artifacts found in undisturbed association with the native pottery. Edged stone implements were not present in this stratum; iron implements found here indicate an eneolithic status of this cultural phase. A coin was also found from this stratum, with a circular outline (3 cm. in diameter) and a square hole (6 mm. to side); it bears an incomplete inscription with two characters, *t'ung* (circulation) and *li* (part of the reign name of the Ming dynasty, either Wan-li, 1573-1619, or Yüing-li, 1647-62). This coin appears to date the Ketagalan culture in northern Taiwan to the middle or later part of Ming. This dating has the added support of a Hung-wu coin (1363-98) discovered at the Aoti site, also a Ketagalan settlement on the northern coast (Kanaseki and Kokubu 1953). The third layer of the Tingyüan site has also yielded porcelain sherds which, pending expert examination, seems to be of a type no later than Ming. It is known that Chinese immigrated into this district toward the end of Ming and the beginning of Ch'ing, and established a town here in the first years of Ch'ien-lung, whose reign began in 1740. In conclusion, the duration of the Ketagalan cultural phase, with hard pottery with net patterns, can be placed within the Sung and Ming dynasties (c. 900-1700).

It follows that the cultural phase with checker-impressed pottery which has been shown to be sandwiched stratigraphically between the Yüanshan and the Ketagalan cultures, must have come into the northern part of Taiwan around the time of the Six Dynasties (c. 200) and probably lasted until the T'ang dynasty (c. 900).

The cultural sequence and chronology of the coastal sites in the district of Pali is illustrated by the accompanying table (Table 1).

TABLE 1. CULTURAL CHRONOLOGY OF PALI DISTRICT SITES

Dates	Cultural Phases	Tap'enk'eng		Shihsan-hang	Hsiaku-tap'u
		Tingyüan	Hsiayüan		
	Modern Chinese	IV		II	
1500					
	hard pottery with net patterns (Ketagalan)	III		I	
1000					
A.D. 500	pottery with checker impres- sions	II			
0					
B.C. 500	Yüanshan Culture	I	II		
1000					
1500	Corded Ware		I		I

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